INTRODUCTION

The CDC describes asthma as a chronic respiratory condition that affects millions of people in the US, across all ages, sexes, and races/ethnicities.\(^1\) During an asthma attack, or exacerbation, the muscles of the airways in the lungs tighten, causing these passages to narrow and restrict airflow to the lungs.\(^1\) Common symptoms include coughing, wheezing, shortness of breath, and chest tightness.\(^1\) There are several factors that can increase an individual’s risk of an asthma attack, including family history, tobacco use and secondhand smoke, poor air quality, allergies, to name a few.\(^1\) Environmental exposures, or “triggers”, such as dust, mold/mildew, pests, and chemicals, can also further aggravate an asthma exacerbation.\(^1\)

While there is no cure for asthma, exacerbations are largely preventable episodes that can be controlled through medical guidance and self-management behaviors. However, lack of awareness or access to care can contribute to the persistence of uncontrolled asthma. Episodes of asthma exacerbations can culminate in various ways that impact quality of life, such as activity limitations, missed school or work days, emergency department visits, hospitalizations, and even death.\(^1\)
ASTHMA IN HOUSTON

There are several factors that contribute to the burden of asthma in Houston, including but not limited to the factors listed below:

- **Petrochemical complexes**: Houston is home to the largest petrochemical complex in the nation. Populations living nearby may be at higher risk of suffering adverse health effects associated with the pollution produced by the complex.

- **Outdoor air pollution**: The air quality in the Houston metropolitan area consistently ranks as one of the worst air quality regions in the nation for both ozone and annual particle pollution. Research has shown that ozone in combination with NO₂ pollution pose further risk to Houston populations with asthma.

- **Housing**: Houston is a city composed of older housing stock, where an estimated 36.0% of homes were built prior to 1980 and an estimated 5.9% were built prior to 1950. Older and poorer housing is at a higher risk of containing indoor environmental triggers, such as mold, mildew, and cockroaches.

- **Outdoor allergens**: Houston is known to have a variety of outdoor allergens, such as tree pollen, grass pollen ragweed pollen, and mold spores.
Climate: Houston is located in the Gulf Coast of Texas with a climate that is getting hotter and wetter, which can affect the ease of breathing and increase the risk of breathing problems during periods of higher humidity.\(^7\)

Hurricanes: Houston suffered the impacts of Hurricane Harvey in August 2017, which set a continental US record for rainfall, and an active record-breaking hurricane season in 2020 as well.\(^8,9\) Families in flooded areas can be exposed to multiple asthma triggers including wet housing, poor indoor air quality (i.e., mold and cleaning chemicals), and particulate matter suspension from debris piles after remediation.

The purpose of the Houston Asthma Burden Report is to provide a snapshot into the current burden of asthma in the City of Houston, as characterized by measures such as prevalence, hospitalizations, emergency department (ED) visits, and mortality due to asthma. It also serves to highlight specific areas and demographic populations of Houston that bear a disproportionate amount of the asthma burden in the City.
KEY FINDINGS

- The **adult** (ages 18 years and older) **current and lifetime asthma prevalence** in 2019 was **7.0%** and **12.0%**, respectively.\(^{10}\) The **child** (under the age of 18 years) **current and lifetime asthma prevalence** in 2019 was **4.2%** and **6.4%**, respectively.\(^{10}\)

- There were **1,514** and **1,509 asthma hospitalizations** in 2018 and 2019, respectively.\(^{11}\)

- There were **10,801** and **11,344 asthma ED visits** in 2018 and 2019, respectively.\(^{11}\)

- There were **21** and **18 asthma deaths** in 2018 and 2019, respectively.\(^{12}\)

- Children have had hospitalization and ED visit rates that are twice as high as these rates for adults in recent years.

- Boys account for a higher proportion of hospitalizations and ED visits as compared to men, while girls account for a lower proportion of asthma hospitalizations and ED visits as compared to women.

- Black/African American populations have higher rates of hospitalizations and ED visits due to asthma, as compared to all other races.
When compared to the most recent available year of national data:

- Houston has a lower prevalence of current and lifetime asthma (adults and children) as compared to national estimates in 2019.\textsuperscript{13,14}

- Houston has higher overall (adults and children) rates of asthma hospitalizations as compared to the national rate in 2018.\textsuperscript{13}

- Houston has lower overall (adults and children) rates of asthma ED visits as compared to the national rate in 2018.\textsuperscript{13}

- Houston has a lower asthma mortality rate compared to the national asthma mortality rate in 2019.\textsuperscript{13}

**RECOMMENDATIONS**

There are strategies through which individuals can mitigate the risks of asthma triggers, such as practicing asthma self-management techniques, speaking with healthcare professionals to improve asthma control, utilizing integrated pest management in homes, and subscribing to the Asthma Air Aware Day alert system (https://www.houstontx.gov/health/Environmental/bpcp/outdoor_air.html) to be notified of days with poor outdoor air quality.

For a complete report of the findings presented here, to get involved as part of the Texas Gulf Coast Asthma Coalition, or to learn more about how the HHD is working to improve asthma control in the City, please contact the **Asthma Prevention & Control Program (APCP)** at (832) 393 - 5141 and/or by visiting the APCP’s website at https://www.houstontx.gov/health/asthma/index.html.
References:

11) Texas Department of State Health Services. Texas Health Care Information Collection, Public Use Data File.
12) Houston Health Department, Bureau of Vital Statistics.
Figure 1
Asthma Hospitalization Crude Rates per 10,000 population, by Year.\textsuperscript{11}

Figure 2
Asthma ED Visit Crude Rates per 10,000 population, by Year.\textsuperscript{11}

Figure 3
Asthma Mortality Crude Rates per 10,000 population, by Year.\textsuperscript{12}